

REMARKS

Claims 4-6, 13-17, 30, 31, and 33-43 are pending in the application.

Claims 33, 35 and 38-40 were amended herein.

Reconsideration of the claims is respectfully requested.

I. ALLOWABLE SUBJECT MATTER

Claims 4-6, 13-17, 34-37 and 39 were objected to as being dependent upon a rejected base claim, but were indicated to allowable if rewritten in independent form including all the limitations of the base and intervening claims. In response, claims 35 and 39 were rewritten in independent form including all limitations of the base claim and any intervening claims. Claims 4-6 depend from claim 35 and claims 13-17 depend from claim 39. Accordingly, claims 4-6, 13-17, 35 and 39 are believed to be allowable.

II. CLAIM REJECTIONS -- 35 U.S.C. § 102

Claims 40-41 and 43 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,285,766 to *Kumamoto* (hereinafter “Kumamoto”). This rejection is respectfully traversed.

A prior art reference anticipates the claimed invention under 35 U.S.C. § 102 only if every element of a claimed invention is identically shown in that single reference, arranged as they are in the claims. MPEP § 2131, p. 2100-67 (8th ed. rev. 8 July 2010). Anticipation is only shown where each and every limitation of the claimed invention is found in a single prior art reference. *Id.*

Claim 40 recites that the at least one feedback crossover path is operable to receive the first output signal, to filter the received first output signal with a feedback crossover path filter

approximating filtering required to provide an optimal inter-time difference to virtualize the at least one speaker and to delay an output of the feedback crossover path filter to compensate for a difference between a delay introduced by the feedback crossover path filter and the optimal inter-time difference, and the first forward crossover path is operable to receive a first input signal, to filter the first input signal with a first forward crossover path filter approximating filtering required to provide an optimal inter-time difference to virtualize the at least one speaker and to delay an output of the first forward crossover path filter to compensate for a difference between a delay introduced by the first forward crossover path filter and the optimal inter-time difference. Support for these features is found in at least paragraphs [0056]-[0065] of the specification as filed.

Filters producing the optimal inter-time difference for Head-Related Transfer Functions (HRTFs) used in virtualizing speakers are generally high-order, inefficient and/or unstable. As claimed, low-order filters producing approximations of the HRTFs, such as Finite Impulse Response (FIR), Infinite Impulse Response (IIR) and/or first or second order low pass filters, may be employed, but result in discrepancies relating to the inter-time difference. Accordingly, when such approximation filtering is employed, a delay is provided compensating for the difference between a desired or optimal inter-time difference and the delay introduced by the approximation filter in either or both of the feedback crossover path and the forward crossover path. Such a feature is not found in the cited reference.

Accordingly, the rejection of claims 40-41 and 43 under 35 U.S.C. § 102 has been overcome.

III. CLAIM REJECTIONS -- 35 U.S.C. § 103

Claims 30-31 and 42 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kumamoto and U.S. Patent No. 7,242,782 to *Kasai, Jr., et al.*, (hereinafter “Kasai”). Claim 33 was

rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 7,424,121 to *Kubota* (hereinafter “Kubota”) and Kumamoto. Claim 38 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Kubota and U.S. Patent No. 7,113,609 to *Neidich, et al.* (hereinafter “Neidich”), Kasai and Kumamoto. The Applicants respectfully traverse these rejections.

In *ex parte* examination of patent applications, the Patent Office bears the burden of establishing a *prima facie* case of obviousness. MPEP § 2142, p. 2100-127 (8th ed. rev. 8 July 2010). Absent such a *prima facie* case, the applicant is under no obligation to produce evidence of nonobviousness. *Id.*

To establish a *prima facie* case of obviousness, three basic criteria must be met: First, there must be some reason – such as a suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art – to modify the reference or to combine reference teachings. MPEP § 2142, pp. 2100-127 to 2100-128 (8th ed. rev. 8 July 2010); MPEP § 2143, pp. 2100-128 to 2100-139; MPEP § 2143.01, pp. 2100-139 to 2100-141. Second, there must be a reasonable expectation of success. MPEP § 2143.02, pp. 2100-141 to 2100-142 (8th ed. rev. 8 July 2010). Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations. MPEP § 2143.02, pp. 2100-141 to 2100-142 (8th ed. rev. 8 July 2010).

Claim 33 recites a forward crossover path configured to receive an output of a first filter, to filter the received signal with a filter approximating filtering required to provide an optimal inter-time difference to virtualize the at least one speaker and to delay an output of the filter to compensate for a difference between a delay introduced by the filter and the optimal inter-time difference. Claim 38 recites at least one feedback crossover path configured to receive signals output from the virtualizer, to filter the received signals with a filter approximating filtering required to provide an

optimal inter-time difference to virtualize the at least one speaker and to delay an output of the filter to compensate for a difference between a delay introduced by the filter and the optimal inter-time difference. Such features are not found in the cited references, taken individually or collectively.

Accordingly, the rejection of claims 30-31, 33, 38 and 42 under 35 U.S.C. § 103 has been overcome.

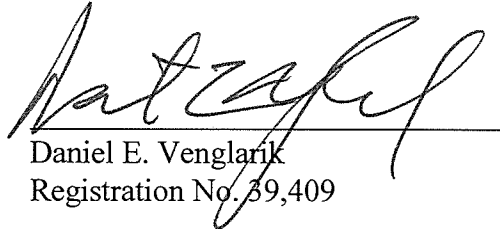
If any issues arise, or if the Examiner has any suggestions for expediting allowance of this Application, the Applicant respectfully invites the Examiner to contact the undersigned at the telephone number indicated below or at *dvenglarik@munckcarter.com*.

The Commissioner is hereby authorized to charge any additional fees connected with this communication or credit any overpayment to Deposit Account No. 50-0208.

Respectfully submitted,

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